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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,133	03/26/2004	Ralf Kruckel	ANO 6295 US/SWE 00606	2794

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AKZO NOBEL INC.
LEGAL & IP
120 WHITE PLAINS ROAD, SUITE 300
TARRYTOWN, NY 10591

EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
08/13/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPANI.PATENT@AKZONOBEL.COM

Office Action Summary	Application No.	Applicant(s)	
	10/811,133	KRUCKEL, RALF	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 8-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 8-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/15/2009 has been entered.

Response to Arguments

Applicant's arguments, filed 6/15/2009, have been fully considered and are persuasive with respect to Frolich et al. Frolich et al discloses a mixture of ketene dimer AKD sizing agents and non-cellulose-reactive sizing agents, but suggests rosin, waxes, fatty acids, amides and esters as non-cellulose-reactive sizing agents. The claimed copolymers are significantly different from the suggested sizing agents of Frolich et al. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made as detailed herein.

Regarding the arguments against Dilts et al and Wendel et al, Dilts et al discloses the claimed emulsifiers as suitable for AKD, while Wendel et al discloses them as suitable emulsifiers for non-cellulose-reactive sizing agents of polymers comprising styrene and alkyl (meth)acrylates. One of ordinary skill in the art would have found it obvious that an emulsifier suitable for each sizing agent would also be suitable for a

mixture of the sizing agents. Absent convincing evidence of unobvious results, it would have been obvious to one of ordinary skill in the art to use the claimed emulsifier as a functionally equivalent option.

Regarding Wendel et al, a reference is not limited to its preferred embodiment, but must be evaluated for all of its teachings, including its teachings of non-preferred embodiments. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). While Wendel et al prefers cationic emulsifiers, the reference does not criticize, discredit, or otherwise discourage the use of the claimed emulsifiers. Rather the claimed emulsifiers are recited as suitable anionic emulsifiers.

Regarding applicant's unexpected results, the example presented uses a mixture of a salt of a fatty amine and the claimed emulsifier, resulting in an increased total amount of emulsifier. Wendel et al discloses that mixtures of emulsifiers can be used. Obtaining greater stability from using an additional amount of any emulsifier would have been obvious to one of ordinary skill in the art. There is insufficient evidence to demonstrate that adding the claimed emulsifier gives unexpected results over adding an additional amount of any emulsifier.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 8, 9, 12-15, 17-22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cenisio et al (6162328) in view of Dilts et al (6576049) and further in view of Wendel et al (4051093).

Claims 1, 5, 8, 19-21 and 26: Cenisio et al discloses an aqueous dispersion useful for internal sizing or surface sizing of paper, the dispersion comprising a cellulose-reactive size such as a ketene dimer (AKD) and a polymeric non-cellulose-reactive size having a molecular weight preferably greater than 10,000. The aqueous compositions are preferably prepared by mixing dispersions of the separate components. Cenisio et al also discloses a method of making paper comprising providing an aqueous pulp suspension of cellulosic fibers, sheeting (forming a paper web) and drying the suspension to form a paper and applying the aqueous sizing dispersion to the surface of the paper (Abs; col 2, lines 41-50; col 3, line 53 to col 5, line 17; col 6, lines 52-53 and 60-63; col 8, lines 1-6). The sizing dispersion can also be used to internally size the paper by adding the sizing agents to the pulp suspension before it is converted into a paper sheet (col 9, line 61 to col 10, line 3). Dewatering the stock to form a sheet is a typical step in papermaking and would have been obvious to one of ordinary skill in the art. Although not explicitly disclosed, adding the sizing agents in the form of the disclosed dispersion would have been obvious as a functionally equivalent option.

In some embodiments, the polymeric non-cellulose-reactive sizing agent is a copolymer comprising monomers styrene or substituted styrene and vinyl monomers, preferably including alkyl acrylate or methacrylate (col 7, lines 25-44).

Cenisio et al does not disclose the claimed emulsifiers, but does disclose that the sizes are generally used as emulsions or dispersions (col 7, lines 61-63).

Dilts et al disclose sizing compositions for paper comprising AKD, an emulsion stabilizer and from about 0.01% to about 15% by weight of the sizing agent of a hydrophobic substance that increases the sizing efficiency of the sizing agent (Abs; col 2, lines 45-60). Suitable emulsifiers for the composition are well known in the art and include ethoxylated phosphate esters (col 14, lines 46-48 and 63-67; col 15, lines 1-3).

Wendel et al disclose a paper sizing composition comprising a copolymer emulsion and an anionic, nonionic or cationic emulsifier. The non-reactive copolymer sizing agent comprises:

(A) from 0.5 to 15 per cent by weight of monomers containing a C=C bond and at least one carboxyl and/or sulfonic acid or phosphate or phosphite group,

(B) from 5 to 30 per cent by weight of monomers containing a C=C bond and a tertiary or quaternary amino group, or a nitrogen-containing heterocyclic group,

(C) from 0 to 94.5 per cent by weight of styrene and/or acrylonitrile

(D) from 0 to 94.5 per cent by weight of acrylic or methacrylic acid esters of alkanols of 1 to 8 carbon atoms, and

(E) from 0 to 30 per cent by weight of further olefinically unsaturated monomers.

The amount of monomers C and D is at least 25%, preferably at least 70%, and up to 94.5% by weight of the polymer. Wendel et al disclose that preferred (meth)acrylic acid esters are methyl (meth)acrylates, ethyl (meth)acrylates, n-propyl (meth)acrylates, n-butyl (meth)acrylates and isobutyl (meth)acrylates (Abs; col 1, lines 33-34; col 2, lines 8-49, particularly lines 44-49; col 4, lines 63-65; col 5, lines 12-15). Thus, in some embodiments, the polymer of Wendel et al comprises 94.5% styrene and alkyl (meth)acrylates, the remainder being other ethylenically unsaturated monomers. Note that the instant claim language allows for additional species of ethylenically unsaturated monomers. Wendel et al recite suitable anionic emulsifiers for use in the sizing emulsion are conventional anionic alkyl phosphates that can be in the form of adducts of ethylene oxide (oxyalkylene phosphate esters).

The art of Cenisio et al, Dilts et al, Wendel et al and the instant invention is analogous as pertaining to sizing dispersions for paper. Dilts et al disclose that the claimed emulsifiers are well known in the art and are used for AKD sizing compositions. Wendel et al teach that the claimed surfactants are conventionally known and are suitable for the disclosed polymeric non-cellulose-reactive sizes. It would have been obvious to use the claimed emulsifier in the dispersion of Cenisio et al in view of Dilts et al and further in view of Wendel et al as a conventionally known emulsifier and as a functionally equivalent option, and to have a reasonable expectation of success, the emulsifier being disclosed in the prior art as suitable for both claimed sizing agents.

Alternatively, it would have been obvious to use the claimed emulsifier separately in either or both of the disclosed AKD and polymer size dispersions as a conventionally

known emulsifier for the sizes. Since Cenisio et al discloses mixing dispersions of the separate sizing components, the mixture would also comprise the claimed emulsifier.

The aqueous sizing dispersion so made is substantially the same as the claimed dispersion and the claimed stability would have been obvious to one of ordinary skill in the art because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claim 12: Cenisio et al discloses that the aqueous sizes can be used at a pH below 6 (col 7, lines 63-67). A typical size press solution has a pH between about 6 and 9 (col 8, lines 59-61). The term “about 6” overlaps the claimed upper limit of “about 6."

Claims 17 and 22: Cenisio et al does not disclose homogenizing the mixture of size dispersions. Dilts et al discloses that sizing compositions are formed by emulsifying the mixtures as is well known in the art to obtain a stable emulsion of a desirable median particle size (col 16, lines 36-48). It would have been obvious to one of ordinary skill in the art to homogenize the mixture as is typical in the art.

Claims 2, 3, 9, 13-15 and 18: Dilts et al discloses that blends of surfactants can be used (col 14, lines 46-48; col 15, lines 24-27). Other suitable surfactants disclosed are quaternary salts of trialkyl amines, which correspond to the claimed cationic compound (col 14, line 64 to col 15, line 8). The surfactants and the amounts used are

adjusted to provide the desired particle size (col 15, lines 9-31), thus using a combination of the claimed emulsifier and a cationic organic compound would have been an obvious option to one of ordinary skill by routine optimization of the mixture.

Dilts et al discloses that the AKD sizing composition includes an emulsion stabilizer, which are well known in the art and can be in some embodiments a synthetic or naturally occurring anionic polymer (col 15, lines 40-49; col 16, lines 8-13).

Claims 10, 11, 16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cenisio et al in view of Dilts et al and further in view of Wendel et al and even further in view of Frolich et al (6306255).

The disclosures of Cenisio et al, Dilts et al and Wendel et al are used as above. Cenisio et al, Dilts et al and Wendel et al do not disclose a condensated naphthalene or lignin sulfonate.

Frolich et al teaches that AKD dispersions are usually prepared with the aid of an anionic compound (e.g.-sodium lignosulfonate) in combination with a high molecular weight cationic starch or polymer (Frolich et al, col 1, lines 13-30). Frolich et al also teaches that, depending on the overall charge of the compounds of the dispersant system, the size dispersion can be anionic or cationic.

The art of Cenisio et al, Dilts et al, Wendel et al, Frolich et al and the instant invention is analogous as pertaining to sizing dispersions for paper. It would have been obvious to use the claimed sodium lignosulfonate as an anionic stabilizer in the dispersion of Cenisio et al in view of Dilts et al and further in view of Wendel et al and

even further in view of Frolich et al as a typical aid used to prepare AKD. Sodium lignosulfonate is also a natural anionic polymer as required by Dilts et al. In some embodiments, one of ordinary skill in the art would have found the sizing dispersions comprising the anionic emulsifier and anionic stabilizer to be anionic as taught by Frolich et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791